

CLAIMS

1. An applicator (12) for distributing a cosmetic preparation on the skin, semi-mucous membrane or mucous membrane, comprising a holding portion (18) and an applicator portion (30) which is injected on to the holding portion (18) in the direction of the longitudinal extent of the applicator (12), wherein both the holding portion (18) and also the applicator portion (30) at least partially comprise plastic material and the plastic material of the holding portion (18) is harder than the plastic material of the applicator portion (30) and wherein the holding portion (18) does not form a core extending into the applicator portion (30) in the direction of its longitudinal extent.
2. An applicator (12) as set forth in claim 1 characterised in that provided between the holding portion (18) and the applicator portion (30) is a connecting layer (32) which has a mixing layer comprising the applicator portion plastic material and the holding portion plastic material.
3. An applicator (12) as set forth in claim 2 characterised in that the mixing layer is between 1/100 mm and several 1/10 mm thick.
4. An applicator (12) as set forth in one of claims 2 and 3 characterised in that the connecting layer (32) has a positively locking connection (34) between the applicator portion (30) and the holding portion (18).
5. An applicator (12) as set forth in one of the preceding claims characterised in that the applicator portion (30) is formed by a casing which at least partially encloses a hollow space.
6. An applicator (12) as set forth in claim 5 characterised in that the applicator portion (30) is of an extension in the direction of longitudinal extent of less than 14 mm.

7. An applicator (12) as set forth in one of the preceding claims characterised in that the applicator portion (30) extends at least in portion-wise manner rotationally symmetrically in the direction of the longitudinal extent of the applicator (12).

8. An applicator (12) as set forth in one of the preceding claims characterised in that the applicator portion (30) tapers away from the holding portion (18) in the direction of the longitudinal extent of the applicator (12).

9. An applicator (12) as set forth in one of the preceding claims characterised in that the applicator portion (30) has at least one substantially even, flattened portion (916, 1016).

10. An applicator (12) as set forth in one of the preceding claims characterised in that the applicator portion plastic material contains silicone rubber.

11. An applicator (12) as set forth in one of claims 1 through 9 characterised in that the applicator portion plastic material contains soft PVC.

12. An applicator (12) as set forth in one of the preceding claims characterised in that the applicator portion plastic material is a thermoplastic elastomer.

13. An applicator (12) as set forth in claim 12 characterised in that a block copolymer is used as the applicator portion plastic material.

14. An applicator (12) as set forth in claim 12 characterised in that the thermoplastic elastomer is formed by mixing a thermoplastic substance with elastic particles (blend).

15. An applicator (12) as set forth in one of claims 12 through 14 characterised in that the thermoplastic elastomer is of a hardness of between 2 and 45 Shore A.

16. An applicator (12) as set forth in claim 15 characterised in that the thermoplastic elastomer is of a hardness of between 5 Shore A and 12 Shore A.

17. An applicator (12) as set forth in one of claims 5 through 16 characterised in that the casing is of a wall thickness of between 0.8 mm and 1.3 mm and an extension in the direction of its longitudinal extent of between 3 mm and 7 mm.

18. An applicator (12) as set forth in claim 17 characterised in that the casing, with a hardness of between 5 Shore A and 12 Shore A, is of a wall thickness of between 0.8 mm and 1.3 mm and an extension in the direction of its longitudinal extent of about 5 mm.

19. An applicator (12) as set forth in claim 15 characterised in that the casing, with a hardness of between 10 Shore A and 45 Shore A, is of a wall thickness of between 0.5 mm and 1 mm and an extension in the direction of its longitudinal extent of between 5 mm and 10 mm.

20. An applicator (12) at least as set forth in claim 15 characterised in that a thermoplastic silicone elastomer of a hardness of between 10 and 30 Shore A is used as the applicator portion plastic material.

21. An applicator (12) as set forth in one of the preceding claims characterised in that the applicator portion (30) has a surface structure with a plurality of structural elements.

22. An applicator (12) as set forth in claim 21 characterised in that the structural elements are of an extent perpendicularly to the applicator portion surface of less than 1.2 mm.

23. An applicator (12) as set forth in one of claims 21 and 22 characterised in that the structural elements include knobs.

24. An applicator (12) as set forth in claim 23 characterised in that the knobs are of an extent perpendicularly to the applicator portion surface of between 0.25 mm and 0.5 mm and in particular of 0.35 mm.

25. An applicator (12) as set forth in claim 24 characterised in that the knobs are of a diameter of between 0.1 and 0.3 mm and in particular of 0.2 mm.

26. An applicator (12) as set forth in one of claims 21 and 22 characterised in that the structural elements include crowns with respective peripherally arranged prongs.

27. An applicator (12) as set forth in claim 26 characterised in that the crowns are hexagonal, with a respective prong arranged at each corner.

28. An applicator (12) as set forth in one of claims 26 and 27 characterised in that the crowns are of different cross-sections.

29. An applicator (12) as set forth in one of claims 26 through 28 characterised in that the prongs are of an extent perpendicular to the applicator portion surface of between 0.2 mm and 0.6 mm and in particular of 0.4 mm.

30. An applicator (12) as set forth in one of claims 21 and 22 characterised in that the structural elements include slats.

31. An applicator (12) as set forth in claim 30 characterised in that the slats are of an extent perpendicularly to the applicator portion surface of between 0.1 mm and 0.3 mm and in particular of 0.2 mm.

32. An applicator (12) as set forth in claim 30 or claim 31 characterised in that the slats are oriented substantially transversely with respect to the direction of the longitudinal extent of the applicator.

33. An applicator (12) as set forth in claim 30 or claim 31 characterised in that the slats are annularly closed.

34. An applicator (12) as set forth in claim 33 characterised in that the slat rings are arranged substantially rotationally symmetrically around the direction of the longitudinal extent of the applicator.

35. An applicator (12) as set forth in claim 33 characterised in that the slat rings are arranged substantially on the even, flattened portion (916, 1016).

36. An applicator (12) as set forth in one of claims 21 and 22 characterised in that the structural elements include bristles.

37. An applicator (12) as set forth in claim 36 characterised in that the bristles are of an extent perpendicularly to the applicator portion surface of between 0.3 mm and 1 mm.

38. An applicator (12) as set forth in claim 37 characterised in that, with an extent perpendicular to the applicator portion surface of between 0.4 mm and 0.6 mm, the bristles are of a diameter of between 0.4 mm and 0.6 mm.

39. An applicator (12) as set forth in claim 37 characterised in that, with an extent perpendicular to the applicator portion surface of between

0.7 mm and 1 mm, the bristles are of a diameter of between 0.1 mm and 0.3 mm.

40. An applicator (12) as set forth in one of the preceding claims characterised in that the holding portion plastic material includes a thermoplastic material, preferably polyethylene, polypropylene, polyvinyl chloride, polyacetate, polyacetal, polystyrene or its mixed polymers, or polyamide.

41. An applicator (12) as set forth in one of the preceding claims characterised in that the holding portion (18) at least partially comprises thermosetting material.

42. An applicator (12) as set forth in one of the preceding claims characterised in that the holding portion (18) at least partially comprises metal.

43. A process for the production of an applicator (12) as set forth in one of the preceding claims characterised by the process step of injecting the applicator portion (30) in the direction of the longitudinal extent of the applicator on to the holding portion (18) by means of an injection machine.

44. A process as set forth in claim 43 characterised in that the holding portion (18) is produced at least partially from plastic material in the same injection machine in an injection operation preceding injection of the applicator portion (30) on to the holding portion.

45. A process as set forth in claim 43 or claim 44 characterised in that a positively locking connection (34) is produced in the injection operation between the applicator portion (30) and the holding portion (18).

46. A process as set forth in one of claims 43 through 45 characterised in that the injection operation is effected in such a way that a

mixing layer (32) is produced between the applicator portion (30) and the holding portion (18).

47. A process as set forth in claim 46 characterised in that the operation of injecting the applicator portion on to the holding portion is effected after the injection operation for production of the holding portion (18) prior to complete cooling of the holding portion (18) to ambient temperature.

48. A process as set forth in claim 46 or claim 47 characterised in that the operation of injecting the applicator portion on to the holding portion is effected at a processing temperature of the holding portion material of between 30°C and 80°C.

49. A process as set forth in one of claims 43 through 48 characterised in that the operation of injecting the applicator portion on to the holding portion involves the use of an injection molding mold having a core around which material is to be injected and which is dissolved out of the applicator to form the hollow space in the applicator portion after hardening of the applicator portion plastic material.

50. A process as set forth in one of claims 43 through 49 characterised in that in the operation of injecting the applicator portion on to the holding portion an injection molding mold having a laser-sintered negative of the surface profile of the applicator portion (30) is used.

51. A process as set forth in one of claims 43 through 50 characterised in that the holding portion (18) is produced from a thermoplastic material, preferably polyethylene, polypropylene, polyvinyl chloride, polyacetate, polyacetal, polystyrene or its mixed polymers, or polyamide.

52. A process as set forth in one of claims 43 through 51 characterised in that the holding portion (18) has an insert portion which is made from thermosetting material and which is fitted into the injection machine prior to the operation of injecting the applicator portion (30) on to the holding portion and/or prior to the operation of injecting the holding portion plastic material therearound.

53. A process as set forth in one of claims 43 through 52 characterised in that the holding portion (18) has an insert portion which is made from metal and which is fitted into the injection machine prior to the operation of injecting the applicator portion (30) on to the holding portion and/or prior to the operation of injecting the holding portion plastic material therearound.

54. A process as set forth in one of claims 43 through 53 characterised in that a cover cap (16) is produced in the same injection machine or in a second injection machine arranged near the injection machine for the applicator portion (30), preferably at the same time as the operation of injecting the applicator portion (30) on to the holding portion.

55. A process as set forth in claim 54 characterised in that the cover cap (16) is fitted on to the applicator portion (30) after the operation of injecting the applicator portion (30) on to the holding portion in the injection machine.

56. A process as set forth in claim 54 characterised in that the cover cap (16) is fitted on to the applicator portion (30) on an assembly apparatus between the injection machine for the applicator portion (30) and the second injection machine for the cover cap.